REMARKS

Independent method claim 12 has been replaced by new method claim 35. Independent method claim 14 has been rewritten to depend from new claim 35. Independent apparatus claim 18 has been amended. New claim 35 and the amendments to claim 18 are believed to be supported by the description on pages 10 to 14 of the specification. The recited inverse calculation model is discussed at page 13, third paragraph.

The independent claims have also been amended to recite use of a SIMCA classification model (Soft Independent Model of Class Analogy).

Claim Rejections - 35 U.S.C. § 112

The Examiner has objected to the recitation of claim 18 "a near infrared ray generator for generating visual light rays and/or near infrared rays." The term "a near infrared ray generator" has been replaced by the term "an electromagnetic ray generator." Conforming amendments have been made to dependent claims 19 and 20.

Claim Rejections

The claims prior to amendment stand rejected as anticipated or obvious over the Tsenkova et al. 1994 Article, in view of Osten et al., Mortensen and Benaron patents.

The Tsenkova et al. article describes the feasibility of the near NIR range (690 nm to 1235 nm) for both: mastitis diagnosis and cow milk composition analysis (see Abstract),

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and separately and independently measured NIR spectra for each cow so as to essentially compare its data alone.

The Tsenkova et al. article describes on page 83, lines 5 to 2 from the bottom "[t]he scattering induced by the particles in milk showed a distinct individual pattern for each cow . . . we analyzed the data of spectra of each cow separately." Further, the article describes on page 84, lines 19-21 "Original spectra of individual, bucket milk samples of mastitis cow No. 664 and healthy cow No. 689 (Fig. 1; Table 1) and cow No. 686 (Figs. 2, 3) showed that the spectra from the same cow are similar. However, the groups of spectra of different cows are different."

The Tsenkova et al. article consistently noted individual cows, and showed that the same cow showed similar NIR spectral curves even with the lapse of time, while NIR spectral curves differed between different cows (ex. mastitic cow No. 664 and healthy cow No. 698). The reference further shows that even the same cow No. 686 showed different NIR spectral curves between milks (FL, FL, FR) from healthy quarters and (RR) from the mastitic quarter. See Fig. 4.

The Tsenkova et al. article never teaches or even remotely suggests the technical idea of the claimed invention that intensities of transmitted light rays, reflected light rays or transmitted and/or reflected light rays from the urine, raw milk or mammary gland of each of known healthy cows and known mastitic cows are detected, a multivariate analysis of the spectral data consisting of wavelengths and detected intensities of the light rays is effected by a principal component analysis, and a SIMCA classification model is prepared for each of the known healthy cow group and the known mastitic cow group.

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Further, the cited references do not teach, even remotely suggests or gives motivation to the skilled person in the art that the unknown cow is diagnosed to be mastitic or healthy by detecting intensities of transmitted light rays, reflected light rays and/or transmitted and reflected light rays from the urine, raw milk or mammary gland of the unknown cow, deciding whether the unknown cow fits better to either the SIMCA classification model for the healthy cow group or that for the mastitic cow group based on probability, separability or similarity, and judged that the unknown cow belongs to the group to which the unknown cow fits better.

The Examiner contends that Osten et al. teaches that PLS is a suitable substitute for multiple linear regression and that Benaron teaches that SIMCA is a suitable substitute for PLS. The Examiner combines the Tsenkova et al. article with Osten et al. and Benaron to make rejections under 35 U.S.C. § 103. However, none of the references contain a suggestion or motivation for combining the teachings of the references.

Accordingly claims 35 and 18 and the claims dependent thereon are believed to be allowable.

If any minor matters arise after consideration of this amendment, the Examiner is requested to contact the undersigned by telephone, to expedite issuance of the patent.

Respectfully submitted,
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